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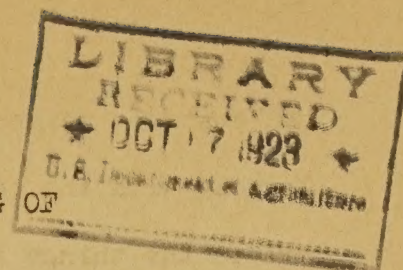




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UNITED STATES DEPARTMENT OF AGRICULTURE  
DIVISION OF AGRICULTURAL INSTRUCTION.

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USE OF ILLUSTRATIVE MATERIAL IN THE TEACHING OF  
AGRICULTURE.<sup>1</sup>

Suggestions for Teachers in Secondary Schools.

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INSTRUCTION MUST BE LINKED WITH PRACTICE

If agriculture is to be given a permanent place in the curriculum it must be something more than a study of books. Teachers are beginning to realize this fact and are giving more attention to those phases of agricultural instruction which emphasize the practical. To this end more emphasis is being placed upon laboratory exercises, practicums, and home projects, and more attention is being directed toward stimulating interest in the recitation by linking the work of the classroom with the daily experiences and home life of the pupils.

A proper use of illustrative material will do much to foster this interest and make the teaching of agriculture more effective.

IMPORTANCE OF VISUAL INSTRUCTION IN AGRICULTURE.

The concrete versus the abstract.--It is a fundamental rule of pedagogy to go from the concrete to the abstract, from that which is more familiar to that which is less familiar; hence the need of combining illustrative materials from the farm, with which the pupils are ordinarily familiar, with materials from laboratory and other less familiar sources in approaching the teaching of the more abstract principles of agriculture. This is a basic principle which is too often ignored or lost sight of. Agriculture is based upon

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the abstract sciences but we should not lose sight of the fact that it deals largely with the common things about us. The primary interests of pupils are in the things about them and especially in new knowledge concerning these things. The modern teacher aims to vitalize the school work and relieve it of drudgery by connecting the instruction, as far as possible, with these interests. Teachers do well to remember the interest of the pupils in tangible things and in processes in which action is involved. If this is kept in mind teachers will be appreciative of the value of illustrative material in arousing interest and will develop discrimination in its selection and use.

Learning by seeing.--All pupils learn largely through what they see; some are so dependant upon their eyes for this purpose that they are frequently spoken of as eye-minded. Teachers need to study their pupils as individuals and thus learn how best to teach them. In most cases pupils hear too much and see too little. Under such conditions the eye-minded pupil is at a great disadvantage. In any case intelligent visualization of the lesson is essential in arousing and maintaining attention. There are few teachers who may not profitably give more time to visualizing their instruction through the wise selection and use of illustrative material.

#### OUT-OF-DOOR SOURCES OF ILLUSTRATIVE MATERIAL AND MEANS OF INSTRUCTION.

Although the teacher will find very important aids in illustrating the lesson in the laboratory, classroom, and museum, yet he must not forget that probably the most valuable illustrative material which he can use, is to be found in the community surrounding the school. Many phases of agriculture are studied most profitably out of doors; hence, the teacher should not only use the school equipment, but should draw as much as is profitable from the surrounding community. For example, in a study of crops, methods of culture as well as the crop itself may be studied in a visit to a field where the crop



is growing. In the study of animal husbandry, field trips for the observation of methods as well as for practice in judging, are almost an essential to successful teaching. The utilization of the community for material for visual instruction may take the following forms: (1) Field trips, (2) the gathering of material from the farms to use in classroom and laboratory work.

Field trips and farm visits.--In order that the teacher may be able to utilize the resources of the community to the best advantage in his instruction, he should become familiar with such of the farm conditions, equipment, and practice of the community as he can use profitably in his teaching. Whenever possible, he should see to it that the school work make use of the actual experiences and conditions of the community. This can best be done through field trips taken with the class. However, if the field trip is to be of any great value, it must be more carefully planned than is usually the case. The teacher must know definitely what he expects to show to his pupils and what he expects them to do, to observe, and to learn. The instructor should also be familiar with the conditions of the route gone over, and the places to be visited, and the owners of these places should understand just when and for what purpose the visits are to be made. For each trip there should be a definite aim, which must be kept before the class at all times during the trip. A definite outline will prove helpful for this purpose. Although the formal discipline of the classroom has no place in such a trip, the students should not be allowed to forget that they are out for a definite purpose, and that the trip is a part of their school work. Each student should be assigned a definite piece of work in collecting material, making observations, and the like, to be reported upon later. This work, though it should be allotted sufficient time and opportunity for completion, should leave the pupil little time to waste. He should be kept on the alert throughout the trip.



Field trips may profitably be made to nearby farms to observe farm operations, to see and study farm stock, and to observe the growing of farm crops under different conditions. Methods of cultivation may be studied as well as the growing plants. Pupils may observe agricultural facts and see agricultural principles put in practice. Materials may be gathered and observations made which will furnish a basis for future study and discussion in the classroom. Good farmers may be asked to explain their operations to the pupils, or they may be induced to bring animals or other products of the farm to the school when it is not convenient for the pupils to go to the farms. Students in animal husbandry should, if possible, visit nearby stock farms where good types of animals and good methods of care and feeding may be observed. Visits to creameries, canning factories, sugar factories, packing houses, city markets, and other industries closely related to farming, may be well worth while. Classes studying farm mechanics may visit implement houses to study farm machinery, or visit a farm where some new machine is in operation. Dealers often will send samples of farm machinery to the school for inspection and study by the class in agriculture. The erection of farm buildings, the construction of irrigation ditches, the ditching of land for drainage, the installation of water systems, the construction and improvement of roads, and other such constructive work will be of interest to students of rural engineering. Agricultural fairs and exhibits offer opportunities for trips of such educational value that the teacher of agriculture cannot afford to overlook them. The town or village barns and poultry houses, the butcher shops, the livery stables, blacksmith and machine shops, and many other business places will also furnish valuable illustrative material.

As has been mentioned, the field trip may be undertaken solely for the purpose of gathering material for future use in the classroom. As in the other type of field trip, something definite should be undertaken, each pupil



being assigned a specific part, and ample arrangements being made for caring for the material after it has been gathered, and for conveying it to the school.

Collections may be made of farm crops, including both the plant and the fruit or seed; weeds and weed seeds; specimens of plant diseases; crop and garden pests; soils; fertilizers; animal feeds; and other material that may be stored away and used later for class work.

(For suggestions regarding the collecting and mounting of materials, see the following: Farmers' Bulletin 586, Collection and Preservation of Plant Material for Use in the Study of Agriculture, and Farmers' Bulletin 606, Collection and Preservation of Insects and Other Materials for Use in the Study of Agriculture.)

#### ILLUSTRATIVE MATERIAL IN THE CLASSROOM.

Fresh Material.--It is often more convenient to study agricultural materials in the classroom than in the field, and as has already been suggested, a classroom consideration of materials is often profitable in connection with a field trip. The class may go into the field to study methods of handling a certain crop, but a more detailed study of the plant may be made in the classroom. It is not always possible, even if desirable, to go into the field, so the teacher should appreciate the value of bringing material into the school, both for classroom and laboratory use. Inasmuch as agriculture deals primarily with plants, animals, and the soil, there is an abundance of material which may be used. This material when alive or fresh, has an advantage over dry or mounted material in holding interest and in bringing out details of structure and function. It is often the case that the material does not permit of preservation in such a state that it is useful for study. Teachers should take advantage of fresh material when it can be obtained, and keep in mind the chances for obtaining such when planning their courses.



In order to supply material suitable for classroom use, some schools have used a garden plat or a part of the school farm for the purpose of growing illustrative materials. These gardens serve as a sort of museum of living specimens. In some cases they serve as demonstrations to people of the community, of crops which may be suitable for their farms. In the garden of a western school the students planted, among other things, a number of types and varieties of sorghum. As most of the types were new to the community, the garden succeeded in arousing interest in a crop suitable to the section. The garden plat for illustrative material has the advantage in giving the students an opportunity to study the crops while growing, as well as furnishing materials suitable to illustrate the course which may be planned.

Securing fresh and living material out of season is often desirable, but presents a somewhat difficult problem. The school which owns a greenhouse is fortunate, as it affords a supply of fresh, living material as well as a place for practice work with plants during the winter months. This practice work may well illustrate principles taught in the classroom. Breeding cages for land forms of animals, aquaria for water forms, and window boxes for plants, may be used under favorable conditions to supply certain kinds of living material during the entire year. In case a greenhouse is not available, the school with limited funds can use with advantage simply constructed cold frames and hotbeds to supply fresh living material for class use, and in the spring time furnish plants for use in the school or home garden.

Mounted material.--It is not always convenient to make use of fresh material. In a great many schools there is a long period in winter when use must be made of material dried or preserved in some manner. Such material as soils, fertilizers, seeds, and animal feeds, need no preservation other than protection from dampness, mice, and other pests. Such materials may simply be placed in glass jars with tight covers, of uniform size and convenient to handle, or they



may be kept in bulk, in tightly closed cabinets or bins. Most plants may be dried and mounted to show type and variety of crops, noxious weeds, effect of injurious insects or plant diseases. Insects can be easily mounted on pins or with other small animals may be preserved in alcohol or formaldehyde (See Farmers' Bulletins 586 and 606). Permanent collections of plants, insects, rocks, soils, seeds, and the like, should be made. Provisions should be made, however, for suitable cabinets, shelves, and cases for preserving this material. If a small room of suitable size is available, it may be properly equipped and this material kept in it; or a portion of the laboratory may perhaps be used; or it may be stored in a part of the agricultural classroom; or even, if necessary, in the corridors of the school building.

Teachers should plan their work ahead and be sure that there is an abundance of material for classroom and laboratory use. Certain plant and animal materials may be secured only at definite times, hence the necessity for planning ahead for the gathering of out-door illustrative materials. In States where teachers are employed for the whole year, the gathering of such material may profitably be made a part of their summer work.

#### CHARTS, MAPS, PICTURES, LANTERN SLIDES, AND MOVING PICTURES.

The present time might well be called the "visual age." Never before has there been so much money invested, or energy expended in illustrative work. More than 25,000 moving picture theatres in the United States, with millions invested, make capital of this fact.

The wide-awake instructor in agriculture is quick to appreciate the value of properly selected illustrative material in presenting his ideas and driving the facts home. He knows that we seldom find a man or woman who, when words fail to explain his or her idea, does not at once attempt to draw a rough sketch to make the matter plain, whether it is the floor plan of a house, or the construction of a mouse trap. "Something like this," says the average



man when words fail him, and he turns to pencil and paper to make his meaning clear. So the teacher of agriculture, if he has foresight and the vision of his opportunities, has illustrative material ready to reinforce his instruction, whether it be blackboard drawings, charts, photographs, maps, models, specimen exhibits, lantern slides, or moving pictures.

Abundant use should be made of the blackboard in placing before the students, outlines of lessons, important facts to be remembered, facts involving figures and data, expressed in a graphic way. Sketches, outlines, figures, and charts designed for temporary use should be placed on the blackboard, but there should also be available a well selected supply of more formal charts.

#### Charts.

Charts can often be used effectively to supplement or reinforce a talk, lecture, or classroom recitation in agriculture. Good charts are effective in teaching because (1) they are simple, (2) they center attention, (3) they hold interest, (4) they leave a lasting impression, and (5) they help present a subject logically. The essentials of a good chart are (1) it must tell a helpful story, (2) it must be logical and convincing, and (3) it must be easy to read.

Arrangement of the subject matter has much to do with the teaching value of the chart. A pleasing, well-balanced arrangement gives a good impression at the first glance. The intelligent use of various sizes of type and space can be used to make the "talking" points of the chart stand out clearly. Colors and symbols should be used sparingly on a chart; used with judgment, however, they often bring out a point more strongly and lighten up the chart.

Chart making.--Simple equipment for making charts should be a part of the regular supplies for teaching agriculture. The minimum equipment should be a chart board, guide board, cloth or paper for chart making, two sets of rubber stamps, ink, and ink pads.



A good chart board is one of the first essentials. Such a board is best made of soft wood. The surface of the board should be free from knots, nails, and other things that would hinder the making of even impressions with rubber stamps. A board made from 3/4-inch matched pine or poplar is excellent. Two or three cleats placed across the back, make the board firm and prevent warping. The dimensions of the board should be a little larger than the largest size of chart desired. A board 6 by 6 feet or 5 by 5 feet makes a serviceable size. For a school where but few charts are made, the most serviceable and inexpensive material is a high grade composition board or plaster board, backed by a well-constructed frame of 1 by 3 inch material.

A simple method of arranging a chart board vertically, is to mount it parallel with, and a few inches from the wall in such a manner that the board can be raised or lowered. A 2 by 6 inch plank at either end, a few braces and pulleys are all that is necessary. For a portable outfit, a simple mounting arrangement is an easel which allows the chart board to incline backward. In case of an emergency a large wooden horse can be pressed into service. The point to be emphasized is that elaborate and expensive apparatus and equipment are not essential in chart making. Both the chart board and easel may be easily constructed by the boys in the school shops.

The guide board against which the rubber stamp rests when making an impression, should be 3/4 of an inch thick and 3 inches wide, and as long as the width of the chart board. The upper edge should be a straight edge. It is convenient to have each end of the guide board so arranged that the board may be quickly and easily slid up and down the chart board. A cheap, simple, and not inconvenient device for this purpose is to fasten a heavy clamp to each end of the guide board. A rule or cloth tape should also be attached to the face of the chart board so as to run parallel to and a little outside of the vertical edges of the cloth when in

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position on the board. It is also convenient to have a rule or cloth tape along the entire length of the guide board.

Permanent charts are best made on cloth. It is economy, however, to make temporary experimental charts on paper. Cloth for chart making should be a good grade of bleached domestic or sheeting. It would be well before making a selection, to secure samples of the available grades and make comparative tests with the ink to be used.

The cloth should always be cut and never torn. Fasten the cloth at the top of the chart board first, and then alternately from side to side, fastening the lower edge last. Slightly dampen creases and folds.

Some chart makers favor the use of a brush and paint in the making of the charts, but, for lettering especially, rubber stamps provided with air cushions are best. Legibility at a considerable distance is a prime requisite, and therefore, large, bold type with all lines of uniform width should be selected, the size of the type depending largely on the size of the chart to be used. The sizes commonly preferred are 3-inch, 2 1/2-inch, 2-inch, 1 1/2-inch, 1-inch, and 3/4-inch. For the construction of small charts the largest size need not be purchased. Fonts of the various sizes of stamps may be purchased from a dealer in stationery and office supplies.

The proper method of inking a rubber stamp is to apply it lightly and with equal pressure to an evenly inked pad.

Several brands of commercial ink designed for use with rubber stamps are available, any of which are serviceable. Mimeograph ink may also be used. The nearer the color of the ink approaches printers' black, the better. In case ink pads large enough cannot be procured, a very satisfactory substitute can be made by covering a board 12 by 6 inches or smaller, with five or six layers of billiard cloth, felt, or a good substitute, and several layers of sheeting, all nailed

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securely to the board. Numerous layers of sheeting alone may be used. The ink should be evenly distributed over the pad with a stiff brush, a case knife, or a flat piece of wood. Colored crayons are not used extensively but a small assortment of them should be kept on hand. In case of any extended use of crayons, a fixative solution should be used to prevent blurring and rubbing. A good home-made product can be prepared by dissolving a half pint or more of shellac in a quart of alcohol. This should be sprayed over the crayon. Errors may be corrected by using Chinese white or similar commercial product.

Much time may be saved in the making of duplicate charts containing simple drawings or complex lettering, by placing a new piece of cloth over the original chart and copying. Vertical lines may be advantageously drawn with a large T square, and horizontal ones by means of the guide board.

Simple line drawings, maps, figures, and so forth, can be most readily reproduced on cloth sheets with the aid of a stereopticon or opaque projector, the former being preferred. If a lantern slide is not available the drawing may be reproduced, slide size, on tracing cloth and fastened to a cover glass, or better still, drawn on a piece of ground glass which can be used in place of a slide. Care must be taken to prevent the breaking of the slide by overheating. This can be avoided by tracing rapidly with a pencil, a portion of the image and turning off the light and finishing that portion with crayon or charcoal, and repeating this until complete.

When the charts are in series, attach them by the upper edge to a plain bar of wood 2 by 1 inches. See that the edges of the charts are even with each other. A collapsible iron stand on which the charts may be hung is desirable, but if this cannot be procured, the charts may be suspended from the wall.

#### Maps.

Outline maps of the United States, state, county, and district, will be found serviceable to the teacher of agriculture. In the general study of



agriculture, an outline map of the United States will be useful on which to locate the principal crop and live stock areas, markets, shipping centers, and general trade routes... For the state, a like practice may be followed, and the students will gain thereby an outline of the agriculture of the state. A map of the county and of the district may be used to locate salient features of a county and district agricultural survey, various colored pins and tags being used to indicate the chief points brought out in the survey. For the district, separate maps may be used for a live-stock survey, a crop survey, a good roads survey, etc. These maps properly used will be found useful as a basis for many practical lessons in agriculture. They should be large enough to be seen in all parts of the classroom, and may be prepared by the students and mounted on large sheets of strong white paper or pasteboard.

Soil surveys and soil maps have been issued for a large number of counties in the United States. Lists of these soil surveys may be procured from the Bureau of Soils, United States Department of Agriculture, Washington, D. C. These maps and surveys may be used in connection with the study of soils, crops, fruits, vegetables, and farm animals. If a soil survey has been made of your county, it may be obtained from your Congressman, or from the Bureau of Soils.

How to use a soil survey map.<sup>1</sup>-A great number of soil surveys have been made in the United States and many schools are in areas where soil maps are available. The advance sheets of these surveys are published and quite widely distributed over the area of the survey. The first thing to study on the map is the scale, what the scale is, and what it means. Usually one inch represents a mile. Let the students measure distances between two roads, or between their home and a point some distance away, measuring it in inches on the map and in feet in the field.

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<sup>1</sup>Write to the Bureau of Soils for list of Soil Surveys that have been made.

The next thing is direction. Soil maps are drawn so that the upper edge is toward the north and everything is drawn from that position. If there is a compass in the schoolroom, put it on the map and turn the map until the upper edge of the map is at right angles to the compass needle. Make all observations with the map in this position. If no compass is available, get a distinct point or object, such as a crossroads, church, or house and place the map so that the direction from the school to the object on the map is in line with the object in the field. Make your observations on the map with the map in this position.

Differences of soil should be noted. The soils around the school are recognized by name, as representing a soil type. Some distance away from the school a different type of soil is recorded on the map. One may be a sand and the other a clay soil. The descriptions of each are given in the report. Visit these two areas and compare the soils.

The report states that a sand may be adapted to certain crops and not to other crops, to which a clay soil is adapted. If these two soils are examined during wet periods and during dry periods, the differences in moisture content and their relation to moisture can be made apparent to the students, and they can be shown that these differences frequently influence vegetation so as to make one soil adapted to one crop and another soil to another crop. By use of the map the soils of the district can be classified and samples brought to school, bottled, and labeled, for a place in the permanent collection of illustrative material.

#### Pictures and Photographs.

In the absence of actual specimens of crops, fruits, and animals, good photographs or pictures furnish an excellent substitute. These pictures may be of crops, fruits, vegetables, farm animals, farm buildings and machinery, and so forth. Among the sources of such pictures are the farm papers, magazines, publications issued by the stock breeding associations, catalogues of fertilizer



companies, farm machinery companies, and dealers in seeds.

Good photographs should be made of local farm conditions, crops, animals, and farm homes. These photographs and pictures should be mounted on a good grade of pasteboard and space for filing them should be provided. The illustrations may be used in class work by being passed around the class or they may be placed on the walls for general inspection. A large collection of this kind of illustrative material may be accumulated within a few years and will prove a valuable aid to the teacher of agriculture.<sup>1</sup>

An important piece of laboratory equipment is a good camera. The instructor in agriculture should be familiar with its use, and thus will be in position to collect a number of pictures illustrating local practices in agriculture, farm animals, farm crops, projects, and various other activities. These can be mounted for class use or can be made into lantern slides at small cost. For pictures of live stock, bromide enlargements can be procured at a medium price, and a collection of illustrations of types and breeds built up with but little expense. A camera with a good lens and a shutter fast enough for all ordinary work may be purchased at a reasonable price from any reputable firm dealing in such supplies.

#### Lantern Slides.

During the past few years there has been an increasing interest in the production and use of lantern slides and films dealing with agricultural topics.

In the absence of the real material, lantern slides make an agreeable substitute. Among the various uses to which lantern slides may be put, the following are mentioned: Indirect classroom instruction, either to form the topic for the class discussion, or to supplement the lesson assigned. This will be found especially valuable in lessons on types and breeds of farm animals, care and management of hogs, poultry, and similar topics; in project study of field crops where the entire process from seed selection to harvesting and marketing

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<sup>1</sup> Write to Division of Agricultural Instruction      United States  
Department of Agriculture, Washington, D. C., for a list of sources of pictures,  
maps, and charts.

may be shown; and in study of crops to show types and varieties of seed and methods of seed selection, curing, and storing. Many other uses will be suggested to the instructor as the work in the school develops.

Prepared lantern slide lectures will also be useful at community meetings both for entertainment and for instruction.

For teacher-training classes, slides showing buildings, equipment, and classroom devices and methods can be used successfully. For general propaganda work slides showing the advantages derived from the study of agriculture and the results obtained in the community, the various community activities of the school giving instruction in agriculture, and the actual results obtained by the individual members of the class through their projects will furnish excellent material to arouse interest in the study of agriculture.

A good projection lantern should be a part of the classroom equipment for teaching. There are a number of standard types of stereopticons on the market and one suitable for school use can be purchased at a reasonable price. A lantern should be simple in construction, take slides of standard size, and be easily carried from one place to another. Care should be taken in purchasing a lantern to secure the proper focal length so that it will fit the room where it is to be used.

The best and most efficient light for projection use, when available, is the electric arc lamp. Next to the arc lamp the Mazda gas-filled incandescent lamp is perhaps the best electric lamp available. These lamps can be used on an ordinary lighting circuit without a rheostat; are economical of current and simple to use, and in many respects, easier to handle than the arc lamp, although the illumination is not so brilliant. For ordinary classroom use the Mazda lamp is as serviceable as any other. Care should be taken to purchase a lamp of the same voltage as the city lighting system.

If electricity is not available, an acetylene lamp provided with a good



mirror reflector will serve the purpose. Acetylene gas is generally available and the lamp is so simple that anyone can operate it. Such a lamp rarely gets out of order, the cost of operation is slight, and it can be readily moved from place to place. A regular acetylene generator can be used, but a gas tank (such as is used on automobiles) is preferable because it is safer, easier to handle, and furnishes a steadier and better light. Because this light is not so strong as the arc light, a smaller screen image should be projected and the room where it is used should be darker than when the arc light is used.

In some cases portable storage batteries adapted to the use of stereopticons have been developed, and have given good service. The increased use of the portable storage battery in automobiles, favors its development and use with the stereopticon.

The simplest and best screen for the projection of lantern slides and films is a plain smoothly plastered or whitewashed wall. Where this is not available a screen made of closely woven, white, 8-foot cotton or linen sheeting is the next choice. It should be kept clean and free from creases or folds.

The United States Department of Agriculture and State colleges of agriculture are giving increased attention to the making of lantern slides illustrating phases of agricultural instruction and various types of farming and farm practice. These slides are loaned free of cost except transportation charges. Commercial firms are preparing slides on agriculture and these may be purchased or rented. Good pictures illustrating local practices in agriculture can be made into slides at a small cost. Lantern slides are useful in both classroom instruction and in general agricultural meetings.

Improvised lantern slides.--Slides showing plans, charts, and sketches can be improvised by making the drawing on a sheet of gelatine and placing this sheet between two glass plates. The teacher of agriculture will find this device an extremely helpful one. In case sheets of gelatine cannot be procured,



drawings may be made on a piece of ground glass the size of a lantern slide. After being used the ink can be washed off and the glass used again for another illustration. Flow on a clean piece of glass lantern slide size ( $3\frac{1}{4} \times 4$ ) a five per cent solution of dry Canada balsam in xylene. Drain and stand on edge to dry. On the dry varnished surface one can write or draw with a pen as easily as on paper. Mount and use as an ordinary lantern slide.

Another plan for making improvised slides is to place an unexposed photographic plate of lantern slide size in an ordinary fixing bath. When fixed wash and dry. On this surface you can write or draw with a pen. Mount and use as an ordinary slide. With a little practice the instructor in agriculture, by using the above suggestions, should be able to improvise many useful slides.

#### Moving Pictures.

Moving picture films do not so readily lend themselves to school instruction purposes because of the special equipment needed for their projection and because they cannot be so easily procured, yet they are rapidly coming more and more into use in the schools of the country.

The increasing production of industrial and vocational films, especially those illustrating agricultural work, makes them accessible to schools and a valuable aid in instruction. The larger high schools and consolidated schools can well afford to purchase a good moving picture machine. Recent improvements have made these machines comparatively easy to handle and by using noninflammable films the danger from fire is eliminated. Various industrial concerns will loan to schools films showing the processes in their factories, while the agricultural colleges and the U. S. Department of Agriculture are preparing films showing many phases of agricultural work.<sup>1</sup>

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<sup>1</sup>For lantern slide lectures loaned by the United States Department of Agriculture, and for a list of firms loaning films to schools write to Division of Agricultural Instruction, United States Department of Agriculture. For information regarding the use of films of the United States Department of Agriculture write to Office of Motion Pictures, United States Department of Agriculture.



